**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

REALTIME DATA, LLC D/B/A IXO,	§	
	§	
Plaintiff,	§	
	§	
v.	§	**CIVIL ACTION No. 6:08cv144**
	§	
PACKETEER, INC., et al.,	§	
	§	
Defendants.	§	
	§	

**REPORT AND RECOMMENDATION OF
UNITED STATES MAGISTRATE JUDGE**

Before the Court is Defendants Blue Coat Systems, Inc., ("Blue Coat"); Packeteer, Inc. ("Packeteer"); 7-Eleven, Inc. ("7-Eleven"); ABM Industries, Inc. ("ABM"); ABM Janitorial Services–South Central, Inc. ("ABMJ"); Build-A-Bear Workshop, Inc. ("BAB"); Citrix Systems, Inc. ("Citrix"); F5 Networks, Inc. ("F5"); Averitt Express, Inc. ("Averitt"); DHL Express (USA), Inc. ("DHL"); Expand Networks, Inc. ("Expand"); Interstate Battery System of America, Inc. ("IBSA"); and O'Reilly Automotive, Inc.'s ("O'Reilly") (collectively, "Defendants") Joint Defendants' Motion for Partial Summary Judgment of Invalidity of U.S. Patent Nos. 6,601,104, 6,604,158, and 7,321,937 for Indefiniteness ("Motion") (Doc. No. 247). Plaintiff Realtime Data, LLC d/b/a IXO's ("Realtime") filed an Opposition to Joint Defendants' Motion for Partial Summary Judgment of Invalidity of U.S. Patent Nos. 6,601,104, 6,604,158, and 7,321,937 for Indefiniteness ("Response."). Defendants also filed a Reply ("Reply") (Doc. No. 272). The Court held a hearing on the Motion on April 9, 2009. (Doc. No. 283). For the reasons stated herein, the Court **RECOMMENDS** that Defendants' Motion be **GRANTED-IN-PART** and **DENIED-IN-PART**.

BACKGROUND

On April 18, 2008, Plaintiff filed the instant action against Defendants (Doc. No. 1), alleging infringement of the nine asserted patents:[1] 1) U.S. Patent No. 6,601,104 ("the '104 patent"); 2) U.S. Patent No. 6,604, 158 ("the '158 patent"); 3) U.S. Patent No. 7,321,937 ("the '937 patent"); 4) U.S. Patent No. 6,624,761 ("the '761 patent"); 5) U.S. Patent No. 7,161,506 ("the '506 patent"); 6) U.S. Patent No. 7,378,992 ("the '992 patent"); 7) U.S. Patent No. 7,352,300 ("the '300 patent"); 8) U.S. Patent No. 6,748,457 ("the '457 patent"); and 9) U.S. Patent No. 7,376,772 ("the '772 patent").

The asserted patents can be viewed as three patent families: 1) the data acceleration patent family; 2) the data compression patent family; and 3) the hardware patent family. The data acceleration patent family is comprised of the '104 patent, the '158 patent, and the '937 patent. This patent family teaches systems and methods for providing accelerated data storage and transmission. The data compression patent family is comprised of the '761 patent, the '506 patent, the '992 patent, and the '300 patent. This patent family teaches methods for performing data compression. The hardware patent family is comprised of the '457 patent and the '772 patent. This patent family teaches apparatus designs associated with data compression and accelerated data storage and retrieval. Plaintiff asserts over ninety claims of the nine asserted patents. *See* NOTICE OF FILING OF JOINT CLAIM CONSTRUCTION CHART, EXH. A ("Claim Chart") (Doc. No. 274).

Representative claims are provided below with the terms Defendants argue are indefinite set forth in bold. Claim 1 of the '104 patent provides:

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[1]Defendant Blue Coat Systems, Inc. ("Blue Coat") was added as a Defendant when Plaintiff filed its First Amended Complaint. (Doc. No. 58).

1. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for providing accelerated data storage and retrieval, said method steps comprising:

  receiving a data stream at an input data transmission rate which is greater than a data storage rate of a target storage device;

  compressing the data stream at a **compression rate** that increases the effective data storage rate of the data storage device; and

  storing the compressed data stream in the target storage device.

'104 patent at 18:41. Claim 17 of the '937 patent provides:

17. A method comprising:

  receiving a data stream over an input having a first bandwidth;

  compressing, in at least real-time, said received data stream using a plurality of encoders to provide a compressed data stream;

  transmitting said compressed data stream over an output having a second bandwidth, wherein said first bandwidth is **substantially greater** than said second bandwidth and said transmitting said compressed data stream effectively increases said second bandwidth;

  and wherein said compressing and said transmitting of said compressed data stream over said output occurs faster than a transmission of said data stream in uncompressed form over said output.

'937 patent at 20:9–24. Finally, claim 20, which depends from claim 17 of the '937 patent, provides:

20. The method of claim 17, wherein said compressing said received data stream comprises compressing said received data stream using **a plurality of Lempel-Ziv encoders**.

'937 patent at 20:35–38.

Defendants filed the instant Motion on March, 16, 2009, arguing that the asserted claims of the '104, '158, and '937 patents are invalid as a matter of law because the claims fail to meet the definiteness requirement of 35 U.S.C. section 112, paragraph 2. MOTION at 1.

LEGAL STANDARD

I.   Summary Judgment

Summary judgment is appropriate when the record, as a whole, together with the affidavits, if any, show that there is no genuine issue as to any material fact, and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c); *Celotex Corp. v. Catrett*, 477 U.S. 317, 323–25 (1986). A fact is material if it might affect the outcome of the suit under the governing law. *Merritt-Campbell, Inc. v. RxP Prods., Inc.*, 164 F.3d 957, 961 (5th Cir. 1999). A "genuine issue" of material fact exists when a fact requires resolution by the trier of fact and a reasonable jury could resolve a factual matter in favor of the non-movant. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248–49 (1986).

The moving party bears the initial burden of showing absence of a material fact issue, and doubt is resolved against the moving party. *Adickes v. S. H. Kress & Co.*, 398 U.S. 144, 157 (1970); *U.S. v. Diebold, Inc.*, 369 U.S. 654, 655 (1962) (the court should draw all reasonable inferences in favor of the non-moving party). If the moving party "fails to meet this initial burden, the motion must be denied, regardless of the non-movant's response." *Little v. Liquid Air Corp.*, 37 F.3d 1069, 1075 (5th Cir. 1994) (*en banc*). If the movant meets this burden, Rule 56 requires the opposing party to go beyond the pleadings and to show by affidavits, depositions, or other admissible evidence that specific facts exist over which there is a genuine issue for trial. *EEOC v. Texas Instruments, Inc.*, 100 F.3d 1173, 1180 (5th Cir. 1996); *Wallace v. Texas Tech. Univ.*, 80 F.3d 1042, 1046-47 (5th Cir. 1996).

When ruling on a motion for summary judgment, the Court is required to view all justifiable inferences drawn from the factual record in the light most favorable to the nonmoving party.

Matsushita, 475 U.S. at 587; *Adickes*, 398 U.S. at 158-59; *Merritt-Campbell, Inc.*, 164 F.3d at 961.

However, the Court will not, "in the absence of any proof, assume that the nonmoving party could

or would prove the necessary facts." *McCallum Highlands, Ltd. v. Washington Capital Dus, Inc.*,

66 F.3d 89, 92 (5th Cir. 1995), *as modified*, 70 F.3d 26 (5th Cir. 1995). Unless there is sufficient

evidence for a reasonable jury to return a verdict in the opposing party's favor, there is no genuine

issue for trial, and summary judgment must be granted. *Celotex*, 477 U.S. at 322-23; *Anderson*,

477 U.S. at 249-51; *Texas Instruments*, 100 F.3d at 1179.

II.   Indefiniteness

A claim is invalid as indefinite under 35 U.S.C. section 112, paragraph 2 if it fails to

particularly point out and distinctly claim the subject matter that the applicant regards as the

invention. The party seeking to invalidate a claim as indefinite must show by clear and convincing

evidence that one skilled in the art would not understand the scope of the claim when read in light

of the specification. *Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc.*,

336 F.3d 1308, 1319 (Fed. Cir. 2003). Further, indefiniteness is an issue of claim construction and

therefore a question of law. *Cordis Corp. v. Boston Scientific Corp.*, 561 F.3d 1319, 1331

(Fed. Cir. 2009). The test for indefiniteness is stringent—a claim is invalid as indefinite if it is not

"amenable to construction." *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1375

(Fed. Cir. 2001). The definiteness requirement of section 112, paragraph 2 "focuses on whether the

claims, as interpreted in view of the written description, adequately perform their function of

notifying the public of the [scope of the] patentee's right to exclude." *S3 Inc. v. nVIDIA Corp.*, 259

F.3d 1364, 1371-72 (Fed. Cir. 2001) (citing *Solomon*, 216 F.3d at 1379). Section 112, paragraph two

also requires "that the claims be amenable to construction, however difficult that task may be."

Exxon Research, 265 F.3d at 1375. Because a claim is presumed valid, a claim is indefinite only if the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted." *Id.*; *see also Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1338-39 (Fed. Cir. 2003).

DISCUSSION

I.   **"compression rate"[2]**

Plaintiff's Proposed Construction	Defendants' Proposed Construction
amount of input data a compressor can compress per unit of time and amount of compressed data a compressor can output per unit of time	indefinite OR rate at which data is output from the compressor

Defendants contend that the specification distinguishes between the term "compression rate" and "input data rate." REPLY at 3. Defendants further contend that the term "compression ratio" is not "subsumed" in "compression rate" because Plaintiff gave up that subject matter during prosecution. *Id.* at 4. Defendants argue that the only way to increase the effective data storage rate, as disclosed in Claim 1 of the '104 patent is by compressing the data at a compression ratio that is greater than 1, and therefore claims reciting "compression rate" are indefinite. *Id.*

Plaintiff contends that despite Defendants' arguments that this term is indefinite, Defendants nevertheless propose a construction showing that the term is not indefinite. RESPONSE. at 3. Plaintiff argues that the compression rate encompasses both the input and output data rates. *Id.* at 4. Plaintiff also argues that the specification illustrates a proper construction for this term and even Defendants' expert has used the term in his own articles and patents. *Id.* at 5–6. Finally, Plaintiff contends that claims 1 and 2 of the '104 and '158 patents use the term consistently. *Id.* at 8.

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[2]The term "compression rate" is contained in claims 1, 2, 13, and 25 of the '104 patent and claims 1 and 9 of the '158 patent.

Claim 1 of the '104 patent discloses:

> 1. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for providing accelerated data storage and retrieval, said method steps comprising:
> > receiving a data stream at an input data transmission rate which is greater than a data storage rate of a target storage device;
> > compressing the data stream at a **compression rate** that increases the effective data storage rate of the data storage device; and
> > storing the compressed data stream in the target storage device.

'104 patent at 18:41–52 (claim 1). Claim 2 of the '104 patent depends from claim 1 and discloses:

> 2. The program storage device of claim 1, wherein the **compression rate** is at least equal to the ratio of the input data transmission rate to the data storage rate so as to provide continuous storage of the input data stream at the input data transmission rate.

'104 patent at 18:54–58 (claim 2). Claim 1 indicates that the "compression rate" is a rate at which

a data stream is compressed, such that the effective data storage rate of the data storage device is

increased. Claim 2, however, indicates that the "compression rate" is the ratio of the input data

transmission rate to the data storage rate. As Defendants point out, a rate is not the same as a ratio.

MOTION at 6.

Moreover, the specifications of the '104 and '158 patents, as well as the prosecution history,

indicate that the patentee intended these terms to have different meanings—the meanings one of

ordinary skill in the art would attribute the terms. '104 patent at 3:8–13 ("the method for providing

accelerated data storage and retrieval utilizes a compression ratio that is at least equal to the ratio of

the input data transmission rate to the data storage rate"); *id.* at 5:28–32 ("the rate that data blocks

from the input data stream may be accepted by the data storage accelerator 10 is a function of

the . . . the compression ratio achieved [in addition to other factors]"); *id.* at 9:57–65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec); *see also* '158 patent at 3:36–42; 11:10–17. As these portions of the specification indicate, a ratio is a unit-less indicator of relative magnitude, while a rate is expressed in terms of data per unit of time. '104 patent at 9:57–65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec). This conclusion is also supported by the parties' agreed construction of "compression ratio." CLAIM CHART at 11–12 ("ratio of the number of bits in a data block input to an encoder to the number of bits in that data block output from that encoder").

When the application for the '104 patent was filed, claim 2 originally disclosed:

> 2. The program storage device of claim 1, wherein the compression *ratio* is at least equal to the ratio of the input data transmission rate to the data storage rate, so as to provide continuous storage of the input data stream at the input data transmission rate.

MOTION, EXH. F at FH00006208 (emphasis added).[3] The PTO rejected the claim as being obvious, and in response, the applicant amended the claim to disclose a "compression rate." *Id.* at FH00006206–08; *see also id.* at FH00006208 (amending claim 1 from "compressing the data stream at a *compression ratio which provides a data compression rate* that is greater than the data storage rate" to "compressing the data stream at a *compression rate that increases the effective data storage rate* of the data storage device") (emphasis added).

In addition to acknowledging the difference between "rate" and "ratio," in the specifications of the '104 and '158 patents the applicant specifically disclosed the intended meaning of compression ratio. The specification of the '104 patent discloses:

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[3]The '104 patent issued from application no 09/266,394 ("the '394 application"). The '158 patent was a continuation-in-part of the '394 application.

> In order to achieve continuous data storage acceleration, the data storage accelerator 10 must be configured to *compress a given input data block at a rate that is equal to or faster than receipt of the input data. Thus, to achieve optimum throughput, the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10* is a function of the size of each input data block, the compression ratio achieved, and the bandwidth of the target storage device. For example, if the data storage device 45 . . . is capable of storing 20 megabytes per second and the data storage accelerator 10 is capable of providing an average compression ratio of 3:1, then *60 megabytes per second may be accepted as input* and the data storage acceleration is precisely 3:1, equivalent to the average compression ratio.

'104 patent at 5:24–38 (emphasis added). This excerpt reveals that the applicant intended the compression rate of data storage accelerator 10 to be defined by throughput. The specification further indicates that "the input data stream or the output of the data accelerator 10 may be buffered [as needed]." '104 patent at 5:52–24. Thus, as Plaintiff points out, the specification defines "compression rate" in terms of the throughput of the compressor—the amount of data compressed per unit of time.

As to claim 1 of the '104 patent, the prosecution history supports this conclusion. Claims 1 and 2 were initially rejected by the PTO as being obvious in light of the Adiletta reference. MOTION, EXH. F at FH00006203. The prosecution history indicates that the patent applicant considered the increase in the effective data storage rate as the point of novelty which made the invention patentable over Adelitta. This is because Adelitta discloses a data compression scheme which compresses all the data before storing it to memory. MOTION., EXH. F at FH00006205–06. Although Adelitta does provide a decrease in the required memory storage space, an increase in the effective data storage rate may not result because the time required to compress all of the data and subsequently store all the data could be greater than or equal to the time to merely store the

uncompressed data. *Id.* ("the Adiletta system may realize a decrease in storage, but such system will not realize 'accelerated data storage' as contemplated by the present invention"). The applicant's modification of the language in claims 1 and 2, in light of these arguments, reflects the importance of the time required to compress the data and make it available for storage. So unlike the compression ratio, the compression rate takes into account the time period it takes to compress a certain amount of data.

The use of the term "compression rate" in claim 1 of the '104 patent is consistent with this conclusion. There, the data throughput of the compressor is great enough that it increases the effective storage rate of the data storage device. '104 patent at 18:41–53 (claim 1) ("compressing the data stream at a compression rate that increases the effective data storage rate of the data storage device"). Claims 13 and 25 of the '104 patent, along with claims 1 and 9 of the '158 patent similarly use the term "compression rate" to refer to compressor throughput at a given compression ratio. The use of term "compression rate" in claim 2 of the '104 patent, however, is not consistent with the use of the term throughout the remainder of the patent and prosecution history. Claim 2 indicates that the "compression rate" is "at least equal to the ratio of the input data transmission rate to the data storage rate." '104 patent at 18:54–58 (claim 2). As previously noted, this is inconsistent with the remainder of the claims, specification, and prosecution history.

Plaintiff argues that the term "compression rate" provides information about the amount of input data a compressor can compress per unit of time, the amount of compressed data a compressor can output per unit of time, and the amount of data that is compressed—the compression ratio. RESPONSE at 8. In other words, Plaintiff argues that the term "compression ratio" is subsumed within the term "compression rate." However, this contention is refuted by the specification, as previously

noted, because the patentee explicitly distinguishes between "rates" and "ratios." *See* '104 patent

at 3:8–13 ("the method for providing accelerated data storage and retrieval utilizes a compression

ratio that is at least equal to the ratio of the input data transmission rate to the data storage rate");

id. at 5:28–32 ("the rate that data blocks from the input data stream may be accepted by the data

storage accelerator 10 is a function of the . . . the compression ratio achieved [in addition to other

factors]"); *id.* at 9:57–65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec);

see also '158 patent at 3:36–42; 11:10–17; MOTION, EXH. F at FH00006208 (amending claim 1 from

"compressing the data stream at a *compression ratio which provides a data compression rate* that

is greater than the data storage rate" to "compressing the data stream at a *compression rate that

increases the effective data storage rate* of the data storage device") (emphasis added).

Therefore, with respect to claims 1, 13, and 25 of the '104 patent and claims 1 and 9 of the

'158 patent, the Court finds that the term "compression rate" is not indefinite and is properly

construed as "compressor throughput as a measure of the amount of input data a compressor can

compress and make available for storage per unit of time at a given compression ratio."

However, as previously noted, the use of the term "compression rate" in claim 2 is

inconsistent with the remainder of the claims, specification, and prosecution history. It is

nonsensical and one of ordinary skill would understand it as such. The limitation is directed at a

"compression ratio," but discloses a "compression rate." While patents are presumed valid and

claims may only be declared invalid based on clear and convincing evidence, the term "compression

rate" is amendable to only one reasonable construction, rendering claim 2 nonsensical. The Court

must construe the claim as the patentee has drafted it. *Process Control Corporation v. Hydreclaim

Corporation*, 190 F.3d 1350, 1357 (Fed. Cir. 1999) ("[w]here, as here, the claim is susceptible to

only one reasonable construction . . . we must construe the claims based on the patentee's version

of the claim as he himself drafted it"). As such, courts may not redraft claims to make them operable

or to sustain their validity, regardless how the patentee wished they had drafted it. *Chef America,*

Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1373–74 (Fed. Cir. 2004). As a result, claim 2 of the

'104 patent is invalid as being indefinite because it is not "amenable to construction,"

Exxon Research, 265 F.3d at 1375, and it is insolubly ambiguous and no narrowing construction can

properly be adopted." *Id.*; *see also Honeywell*, 341 F.3d 1332 at 1338-39.

II.   **"wherein said first bandwidth is substantially greater than said second bandwidth"[4]**

Plaintiff's Proposed Construction	Defendants' Proposed Construction
wherein said first bandwidth is sufficiently greater than said second bandwidth such that applying compression methods would be beneficial	indefinite

Defendants argue that the specification fails to provide some standard for measuring the

degree of the term "substantially greater" in order to apprise those skilled in the art whether they are

practicing the claimed invention or not. REPLY at 6. Defendants also contend that Plaintiff's

arguments to the contrary rely on portions of the specification that do not relate to comparing

bandwidths as recited in claim 17. *Id.*

Plaintiff contends that the term "substantially" is not only commonly used, but also has been

held not indefinite on numerous occasions by the Federal Circuit. RESPONSE at 11–12.

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[4]The parties identified the term "substantially greater" for argument at the *Markman* hearing. TERMS FOR HEARING at 3. However, the parties include the term "wherein said first bandwidth is substantially greater than said second bandwidth" in the claim chart, so the Court will construe this term. *See* CLAIM CHART at 64. The term "wherein said first bandwidth is substantially greater than said second bandwidth" is contained in claim 17 of the '937 patent.

Plaintiff points to a portion of the specification where the compression ratio is 3:1 as being an example in the '927 patent where the first bandwidth is "substantially greater" than a second bandwidth. *Id.* at 12–13.

Claim 17 of the '937 patent sets forth:

> 17.   A method comprising:
>> receiving a data stream over an input having a first bandwidth;
>> compressing, in at least real-time, said received data stream using a plurality of encoders to provide a compressed data stream;
>> transmitting said compressed data stream over an output having a second bandwidth, **wherein said first bandwidth is substantially greater than said second bandwidth** and said transmitting said compressed data stream effectively increases said second bandwidth; and
>> wherein said compressing and said transmitting of said compressed data stream over said output occurs faster than a transmission of said data stream in uncompressed form over said output.

'937 patent at 20:9–2.

To the extent that Defendants argue that this claim is indefinite because the specification fails to explicitly delineate numerical boundaries for the "substantially greater" term, this is not required. A patentee is not required to define a claimed invention with mathematical precision in order to comply with the definiteness requirement. *Oakley, Inc. v. Sunglass Hut Int'l*, 316 F.3d 1331, 1341 (Fed. Cir. 2003) (citing *In re Marosi*, 710 F.2d 799, 802–803 (Fed. Cir. 1983)). In *Marosi*, the Federal Circuit noted, "[i]nsofar as it requires appellants to specify a particular number as the cutoff between their invention and the prior art, the PTO's position is impractical [because the] invention

does not reside in such a number." *Marosi*, 710 F.2d at 802. There, the Court held that one skilled

in the art would determine if a source is "essentially free of alkali metal" when it contains

"unavoidable impurities in starting materials and essential ingredients." *Id.* at 803. In *Oakley*,

however, the numerical value of the "differential effect . . . producing a vivid colored appearance"

was a distinguishing feature over the prior art, and therefore particular numerical values should

be—and were—disclosed in the specification. 316 F.3d at 1341–42. In this case, that a first

bandwidth is substantially greater than a second bandwidth is not a distinguishing feature over the

prior art. As used here, "substantially greater" is a term of degree. The capacity difference between

the two bandwidths is merely an initial parameter in defining a system which performs the claimed

method of accelerating data storage. Further, the novelty of the invention does not lie in the capacity

difference between the two bandwidths. Thus, as in *Marosi*, the claimed invention does not reside

in a number delineating the capacity difference between the two disclosed bandwidths.

Defendants argue that the specification fails to disclose a frame of reference for determining

when a first bandwidth is "substantially greater" than a second bandwidth. REPLY at 6–7.

Defendants further argue that the portions of the specification that Plaintiff points to for this frame

of reference are irrelevant to the relative size of the first and second bandwidths. However, the Court

disagrees. That there is a dispute, even among those skilled in the art, as to the proper meaning of

"substantially greater" does not, itself, render the claim invalid. *Verve, LLC v. Crane Cams, Inc.*,

311 F.3d 1116, 1120 (Fed. Cir. 2002). Ambiguities which remain after examination of the claims

and specification "may be aided by extrinsic evidence of usage and meaning of a term in the context

of the invention." *Id.* at 1119. Thus, the question is not whether the word "substantially greater"

has a fixed meaning as applied to the first and second bandwidths, "but how the phrase would be

understood by persons experienced in this field of mechanics, upon reading the patent documents."

Id. at 1119–20. The Federal Circuit has explained:

> Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984). Thus, the manner in which one skilled in the art would read and understand the '937 patent is the lens through which the Court should view this term in order to determine the proper meaning.

One skilled in the art would understand that the purpose of this invention is to accelerate the transmission of data in a system limited by the second bandwidth because existing memory storage devices at the time this patent issued limited the performance of many disk and memory intensive operations. '937 patent at 2:22–25. Both claim 17 and the specification disclose that compressing the data effectively increases the second bandwidth, resulting in transmission of data faster than would be possible uncompressed. '937 patent at 20:9–25 (claim 17) ("said transmitting said compressed data stream effectively increases said second bandwidth; [resulting in data stream output which is] faster than a transmission of said data stream in uncompressed form over said output"); *id.* at 2:16–18 ("data compression can reduce the time to transmit data by more efficiently utilizing low bandwidth data links"). Claim 17 is drafted in such a way that one skilled in the art would understand that the difference in the first and second bandwidths is a system constraint related to the problems experienced in the field at the time the patent issued. This system constraint derives

directly from the problems in the art, as disclosed by the patentee:

> One problem with the current art is that existing memory storage devices severely limit the performance of [] computers for all disk and memory intensive operations. For example, magnetic disk mass storage devices currently employed in a variety of [] applications suffer from significant seek-time access delays along with profound read/write data rate limitations. Currently the fastest available (10,000) rpm disk drives support only a 17.1 Megabyte per second data rate (MB/sec). This is in stark contrast to the modem Personal Computer's Peripheral Component Interconnect (PCI) Bus's input/output capability of 264 MB/sec and internal local bus capability of 800 MB/sec.

'937 patent at 2:22–35. In other words, if the first bandwidth is output from an internal local bus and the second bandwidth is input to a mass storage device, 800 MB/s is substantially greater than 17.1 MB/s and a transmission delay will result. *See also* '937 patent at 10:1–13 (noting that "[i]f the maximum data storage rate of the data storage device 45 is . . . is less than the data rate output from the data storage accelerator 10[], data congestion and backup would occur at the output of the data storage accelerator 10"). So the relative sizes of the first and second bandwidths is a parameter pertinent to addressing the practical problems, as disclosed by the patentee, experienced in the art at the time the patent issued.

The specification of the '937 patent also discloses an embodiment with an input data rate of 90 MB/sec, a compression ratio of 3:1, and a maximum data storage rate of the data storage device of 20MB/sec. '937 patent at 10:1–8. While Defendants are correct that this example is not discussed in terms of bandwidth, that does not mean it is bereft of information regarding the relative bandwidths. In other words, if an input data rate is disclosed to be 90 MB/sec, then the first bandwidth of this input transmission line must be at least 90 MB/sec. Further, if the output of the data storage accelerator is 30 MB/sec and the maximum data storage rate of the data storage device

is 20 MB/sec, then the second bandwidth—either the output of the data storage accelerator or the incoming transmission line of the data storage device—must be able to accommodate at least 20 MB/sec. Thus, in this example, the first bandwidth is at least 60 MB/sec greater than the second bandwidth or the relative bandwidth transmission rates is a ratio of at least 90 MB/s to 30 MB/s or 3:1. Further, a similar example is disclosed where the first bandwidth is at least 40 MB/sec greater than the second bandwidth—a ratio of 60 MB/s to 20 MB/s or, again, 3:1. '937 patent at 5:40–46. Thus, the '937 patent discloses at least two examples that one skilled in the art would view as a frame of reference for determining when a first bandwidth is "substantially greater" than a second bandwidth.

The '937 patent also indicates that the term "substantially greater" in claim 17 is a term of degree because its bounds depend on a number of variables within the data transmission system—variables which may have differing levels of relative importance depending on the particular application. *See* '937 patent at 10:8–13 ("[the problem of transmission delay] may be solved by adjusting anyone of the system parameters as discussed above, e.g., by adjusting the compression ratio to provide a data output rate from the data storage accelerator 10 to be equal to the data storage rate of the data storage device 45"); *id.* at 5:35–40 ("to achieve optimum throughput, the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10 is a function of the size of each input data block, the compression ratio achieved, and the bandwidth of the target storage device"); *see also id.* at 9:43–61; *id.* at 14–23. Additionally, different benefits, which may or may not be desirable in particular applications, can result from the degree to which the first bandwidth is greater than the second bandwidth:

> Depending on [a number of] factors [including] the bandwidth of the data storage device, and the intended application, the delay may or may not be significant. For example, in a modern database system, recording data for archival purposes, the opportunity for increased data compression may far outweigh the need for minimum delay. Conversely, in systems such as a military real-time video targeting system, minimizing delay is often of the essence.

'937 patent at 8:9–19. Thus, whether the "substantially greater" limitation of claim 17 reads on a particular application is a question that one skilled in the art would look to the particular system parameters in order to resolve because, without the context of the particular application in mind, a pure numerical bandwidth difference will not always establish whether the first bandwidth is "substantially greater" than the second bandwidth. *See* '937 patent at 20:9–25 (claim 17), Figs. 1, 8. Further, because the claimed invention "applies to all forms and manners of memory devices including storage devices utilizing magnetic, optical, and chemical techniques, or any combination thereof," '937 patent at 2:53–56, the relative bandwidths, and the effect of data compression, will vary greatly among different applications in which the invention is utilized.

In light of the language used in claim 17, the examples disclosed in the specification, the subject matter at issue, and the frame of reference in which one skilled in the art would understand the invention, the Court finds that the term "substantially greater" is expressed in terms that are reasonably precise. *Verve*, 311 F.3d at 1116 ("usages such as 'substantially equal' and 'closely approximate' may serve to describe the invention with precision appropriate to the technology and without intruding on the prior art"); *Exxon Research and Engineering, Co. v. United States*, 265 F.3d 1371, 1379 (Fed. Cir. 2001) (holding the term "for a period sufficient" to attain a stated goal was not indefinite because an example of a preferable period was given in the specification and because "the patent makes clear that the period in question will vary with changes to [the system]"). Given the

previous discussion, the Court finds that the term "wherein said first bandwidth is substantially greater than said second bandwidth" is not indefinite.[5]

III.   "plurality of Lempel-Ziv encoders"[6]

Plaintiff's Proposed Construction	Defendants' Proposed Construction
more than one encoder, each employing a method from the Lempel-Ziv family of compression methods	indefinite

Plaintiff contends that the term "Lempel-Ziv encoders" refers to a family of compression methods that are well-known to those skilled in the art. RESPONSE at 14–15. Plaintiff further argues that this is consistent with writings published by Defendants' expert, Dr. Storer. *Id.* at 15. Defendants argue that the intrinsic records fails to describe or mention the Lempel-Ziv family of compression methods—as Plaintiff asserts this term encompasses—and that numerous encoders bear the "LZ" moniker even though they fail to relate to the original Lempel-Ziv encoders. REPLY at 7.

Claim 20 of the '937 patent depends from claim 17, which discloses:

> 17. A method comprising:
>   receiving a data stream over an input having a first bandwidth;
>   compressing, in at least real-time, said received data stream using a plurality of encoders to provide a compressed data stream;
>   transmitting said compressed data stream over an output having a second bandwidth, wherein said first bandwidth is substantially greater than said second

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[5]Defendants did not offer a proposed construction for this term, relying solely on the instant Motion. DEFENDANTS BLUE COAT, PACKETEER, 7-ELEVEN, ABM, ABMJ, AND BAB RESPONSIVE BRIEF IN SUPPORT OF CLAIM CONSTRUCTION PURSUANT TO P.R. 4-5 ("BLUE COAT RESP.") (Doc. No. 262) at 11–12. Having resolved the dispute regarding whether this claim term is indefinite, the Court declines to adopt a construction at this point. Although Plaintiff has proposed a construction, Defendants have not set forth a position on the issue of the proper scope of this term. Should the parties determine that a dispute as to the scope of this term remains, the parties may submit further briefing regarding their proposed constructions and arguments in support thereof.

[6]The term "plurality of Lempel-Ziv encoders" is contained in claim 20 of the '937 patent.

> bandwidth and said transmitting said compressed data stream effectively increases said second bandwidth; and
>
> wherein said compressing and said transmitting of said compressed data stream over said output occurs faster than a transmission of said data stream in uncompressed form over said output.

'937 patent at 20:9–26 (claim 17). Claim 20 discloses:

> 20. The method of claim 17, wherein said compressing said received data stream comprises compressing said received data stream using a **plurality of Lempel-Ziv encoders**.

'937 patent at 20:35–38 (claim 20). Unasserted claim 4 of the '937 patent also claims compression using Lempel-Ziv encoders. '937 patent at 19:1–3 (claim 4). The specification of the '937 patent refers to "Lempel-Ziv Dictionary Compression" as a "lossless encoding technique[] currently well known within the art." '937 patent at 11:59–61; *id.* at 14:40–42. Otherwise, the patent is silent as to what comprises Lempel-Ziv compression. Thus, having reviewed all the intrinsic evidence, the Court finds that the term "plurality of Lempel-Ziv encoders" is ambiguous and now will address the pertinent extrinsic evidence.

It is not disputed that the term "a plurality of Lempel-Ziv encoders" includes, at least, the LZ77 and LZ78 algorithms. *See* RESPONSE at 14–15; REPLY at 7. The LZ77 and LZ78 algorithms are adaptive lossless compression techniques. MOTION, STORER DEC. at 6. Further, these algorithms are dictionary-based algorithms, meaning the algorithm uses a dictionary that stores a constantly changing set of strings of data represented by 8-bit characters. RESPONSE, VON HERZEN DEC., EXH. O at 330–33.[7] Further, the dictionary is essentially an associative memory for strings of data

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[7]The Court notes that Defendant Citrix Systems, Inc. filed two motions directed, at least, at excluding the opinions of Dr. Von Herzen because 1) Citrix argued that he applied the wrong legal standard in his analysis; 2) Citrix argued that Dr. Von Herzen's declaration fails to meet the requirements of Patent Rule 4-3; and 3) Citrix argued that Dr.

that can "learn" new strings based on the text already processed. *Id.* at 329. Thus, in dynamic dictionary algorithms—like LZ78—strings of data are input into the algorithm and a sequence of pointers—indices to the dictionary—are output. *Id.* at 331. In "sliding window" compression—like LZ77—a string of data is represented by a address of dictionary contents and sequence length. RESPONSE, VON HERZEN DEC., EXH. M. One skilled in the art would understand the term "plurality of Lempel-Ziv encoders" to refer to encoders which implement a compression methodology for dictionary-based lossless data compression, where the dictionary contains any data sequence that has already been used to build the dictionary contents; a pointer to an earlier entry in the dictionary contents indicates a data sequence; and either a combination of address to already coded dictionary contents and sequence length is stored or only an index to the dictionary is stored. Given this information, the term "plurality of Lempel-Ziv encoders" is not insolubly ambiguous.

Further, Plaintiff has failed to show that there is a definable "family" of Lempel-Ziv encoders. Therefore, given the foregoing discussion, the Court finds that the term "a plurality of Lempel-Ziv encoders" is not indefinite and is properly construed as "a plurality of encoders which implement a compression methodology for dictionary-based lossless data compression, wherein a dictionary contains any data sequence that has already been used to build the dictionary contents, wherein a pointer to an earlier entry in the dictionary contents indicates a data sequence, and wherein

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Von Herzen's third and final declaration was disclosed late. (Doc. Nos. 258, 280). While the Court did not consider the opinions of Dr. Von Herzen in reaching its conclusions on either claim construction or the instant Motion and therefore denied these motions, (Doc. No. 371), the Court here considers Exhibits O and M attached to Dr. Von Herzen's declaration—two articles written by Dr. Storer, Defendants' technical expert.

either a combination of address to already coded dictionary contents and sequence length is stored or only an index to the dictionary is stored."[8]

CONCLUSION

The terms "compression rate," "wherein said first bandwidth is substantially greater than said second bandwidth," and "plurality of Lempel-Ziv encoders" are not indefinite. However, the term "compression rate," as used in claim 2 of the '104 patent is insolubly ambiguous, rendering claim 2 of the '104 patent indefinite. For all the foregoing reasons, the Court **RECOMMENDS** that Defendants' Motion be **GRANTED-IN-PART** and **DENIED-IN-PART**. Within ten (10) days after receipt of the Magistrate Judge's Report, any party may serve and file written objections to the findings and recommendations contained in the Report. A party's failure to file written objections to the findings, conclusions and recommendations contained in this Report within ten (10) days after being served with a copy shall bar that party from *de novo* review by the district judge of those findings, conclusions and recommendations and, except on grounds of plain error, from appellate review of unobjected-to factual findings and legal conclusions accepted and adopted by the district court. *Douglass v. United States Auto. Ass'n*, 79 F.3d 1415, 1430 (5th Cir. 1996).

So ORDERED and SIGNED this 23rd day of June, 2009.

JOHN D. LOVE
UNITED STATES MAGISTRATE JUDGE

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[8]9 Defendants did not offer a proposed construction for this term, relying solely on the instant Motion. BLUE COAT RESP. at 14. Having resolved the dispute regarding whether this claim term is indefinite, the Court finds that it is can adequately and appropriately adopt a construction for this term based on both the parties' arguments in the briefing and at the Markman hearing.